22 Q 52

No. 21. 7. 30.

BOSTON
MEDICAL LIBRARY
ASSOCIATION,
19 BOYLSTON PLACE,

Received

By ~~Gift of~~ Exchange.

Dr. L. M.

Digitized by the Internet Archive
in 2010 with funding from
Open Knowledge Commons and Harvard Medical School

http://www.archive.org/details/mineralwatersofk00prie

THE

MINERAL WATERS

OF

KREUZNACH.

BY

J. E. P. PRIEGER, M.D.

PRINCIPAL PHYSICIAN OF THE ROYAL HOSPITAL AT KREUZNACH, PRIVY COUNCILLOR OF HIS MAJESTY THE KING OF PRUSSIA, AND MEMBER OF THE SCIENTIFIC SOCIETIES OF BERLIN, BONN, BRUSSELS, ERFURT, FRANKFORT, JENA, LEIPSIC, MAINZ, WURZBURG, CHEVALIER OF THE ROYAL PRUSSIAN ORDER OF THE RED EAGLE, ETC. ETC. ETC.

TRANSLATED BY

OSCAR PRIEGER, M.D.

RESIDENT PHYSICIAN AT KREUZNACH.

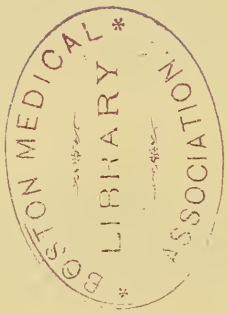
AND ILLUSTRATED BY CASES.

LONDON:

JOHN CHURCHILL, 46, PRINCE'S STREET,

LEICESTER SQUARE.

1846.



JOSEPH GILLETT, PRINTER, MANCHESTER.

TO

CHARLES LOCOCK, ESQ., M.D.

FIRST PHYSICIAN ACCOUCHEUR TO HER MAJESTY THE QUEEN.

DEAR SIR,—The recollection of your kindness, during my visit to London, in the course of last winter, and the deep interest you take in everything connected with Medical Science, and the advancement of our profession, has induced me to dedicate this Translation of my father's publication to you; and I have been the more desirous of doing this, from the knowledge, that your interest, in whatever tends to further the progress of Pathology, is fully equalled by your earnest sympathy, in all that tends to alleviate the afflictions of humanity, or arrest the maladies it suffers from.

I remain, DEAR SIR,

Yours, very faithfully,

OSCAR PRIEGER, M.D.

TRANSLATOR'S PREFACE.

During my stay last winter in England, I had occasion to observe, that the Mineral Waters of Kreuznach were not sufficiently known to my Professional Brethren there; which I the more regretted, as their beneficial effects on Scrofulous and Tuberculous Diseases (so very frequent in that country) are eminently qualified to recommend themselves to Medical men in England; and more particularly, as they have acquired, on the Continent, a fame unexampled, when the comparatively short period in which the Waters have been in use as remedial agents, is taken into consideration.

England, from its insular position, and the consequent great humidity of its atmosphere, is more exposed than many other countries to produce diseases of the above character; and I had many and continued opportunities, during my visits to

the large Hospitals of London, Manchester, and Liverpool, to observe how frequent Scrofulous and Tuberculous Diseases were.

The appreciation of these facts, and the conviction, that the Mineral Waters of Kreuznach only require a knowledge of their important effects to be known by my Professional Brethren there, to be at once recognized and valued, has induced me to translate this little work of my father's, into the English language, and offer it to them, and the public of Great Britain, as a small return for the kindness and hospitality I experienced during my stay in that country; sincerely hoping, that it may lead to the relief of many sufferers, who will avail themselves of the great facilities that exist for making the trip to Kreuznach a short, easy, and comfortable one.

The slight deviations from the original work, as well as some abbreviations and additions to it, have been sanctioned and approved by the author.

OSCAR PRIEGER, M.D.

Kreuznach, October, 1845.

PREFACE OF THE AUTHOR.

My former work on Kreuznach and its Mineral Waters, published in the year 1827, first drew the attention of the public to the place, and recommended the Springs of Kreuznach, to the confidence of physicians and patients—a fact manifested by the exceedingly rapid augmentation of the number of invalids visiting it. This afforded me the opportunity of testing my experience on a larger scale, and to add new observations, the result of which I published in 1837, in my second more explanatory work,—"Kreuznach, and its Brome and Iodine Springs." The number of visitors increased every year, particularly in consequence of the great success obtained by using the Water of the Elizabeth Spring, which gave such confidence to the medical public in the healing power of our Mineral Water,

that Kreuznach stands now amongst the first and most celebrated of the Baths of Germany.

The local and general relation of this place improved in the same proportion as the number of visitors increased; and, consequently, I had, on this account, many opportunities of gaining still further experience from a greater variety of disease, so that I judged it necessary to communicate them to the public, in this little work.

Intending to give invalids, as well as my Professional Brethren, for whom more especially I intend this brochure, the necessary information and due knowledge of the effects resulting from a use of the Mineral Waters, I abstained from any historical remarks relating to the town and surrounding country, and descriptions of the botanic and mineral riches of the land, &c., so much the more as all this has been already given sufficiently, elsewhere. To those wishing for particulars, not corresponding with my present object, I refer to my book on Kreuznach, published in 1837, and

to the history and description of it, by the Rev. E. Schneegans. The consciousness of having used with the greatest care, and without preconceived opinions, the many opportunities of proving and confirming my former experiences, the solicitations of eminent professional men, of our own and foreign countries, give me the courage to offer the results of almost thirty years' practice, in this little work. May it be accepted with good feeling, as it is given with truth; may it strengthen still more the confidence of my medical brethren and the public in our Mineral Waters, and my purpose will be fully realized.

KREUZNACH, September, 1845.

CONTENTS.

PAGE.

Dedication iii

Preface of Translator v

Preface of Author vii

CHAP.

I. Topography of Kreuznach 1

II. Chemical and Physical Qualities of the Mineral Waters 4

III. Instructions for taking the Water 8

IV. Effects of the Water 10

V. Dietetical Directions 13

VI. Bathing Establishments, &c. 17

VII. Use of the Mineral Waters in Baths 20

VIII. Crisis Produced by the Baths 24

IX. The Application of Local Baths 29

X. The Shower Bath and Douche 31

XI. Use of the Vapours arising from the Heated Water in Diseases of the Eye 33

PAGE.

XII. Use of the Vapour Baths in Affections of the Respiratory Organs 34

XIII. Diseases Benefitted by the Waters..... 39

A. Scrofula ..... ib.

B. Swellings and Indurations of the Glands of the Abdomen 42

C. Diseases of the Female Breasts and Sexual Organs 43

D. Diseases of the Generative Organs of Men... 57

E. Ghonorrhœa Steatôma 58

F. Diseases of the Prostrate Gland and Urethra. 59

G. Diseases of the Testicles 60

H. Disorganisations of the Corpus Cavernosum Urethra 62

I. Sand and Calculi in the Kidneys and Bladder 63

K. Diseases of the Bones and Joints..... 67

L. Gout and Hemorrhoids 72

M. Rheumatism 74

N. Rachitis 75

O. Diseases of the Skin 76

XIV. Remarks on the Bittern (Mutterlauge) 87

OBSERVATIONS ON THE MINERAL WATERS OF KREUZNACH.

BOSTON MEDICAL * LIBRARY ASSOCIATION

CHAPTER I.

TOPOGRAPHY OF KREUZNACH, AND ACCOMMODATION THERE.

Kreuznach is situated in the valley of the river Nahe, in the southern part of Rhenish Prussia, surrounded by varied and delightful scenery; crags and rocks tower in many places to a considerable height over the margin of the rivers, while gently undulating mountains, swelling hill and dale, clothed with vineyards, give richness and repose to the prospect; here and there the crests of the mountains are crowned with woods that not only shelter the town from the chilling north winds, but the dark outlines of which give still greater effect to the landscape. Two German miles from Kreuznach the Nahe

falls into the Rhine, at Bingen—the loveliest and most romantic spot on this mighty stream.

The passage from England to Kreuznach, which would have subjected the traveller in former days to many fatigues, is now, when the means and opportunities of travelling are so admirably established, a mere pleasure tour, which is the more agreeable as the road leads through the most delightful and justly celebrated scenery on the Rhine.

Passing the channel he arrives at Antwerp, Ostend, or any other port of Belgium, where the railways offer him every facility for rapidly proceeding, so that he may arrive in one day at Cologne. The line from Malines to Cologne is justly celebrated for the engineering difficulties that had to be overcome in constructing it, and also for the beautiful and interesting part of Belgium it runs through.

From Cologne the traveller steams up the Rhine, passing Bonn, Coblentz, St. Goar, and all those other places so famous in the annals of tourists, and admired by all those who love to contemplate nature in the most magnificent of her works; he leaves the Rhine and the steam boat at Bingen, and arrives after an hour's ride at Kreuznach. I abstain from making any remarks regarding the accommodation in hotels, because the route is so well known to the English

that I need not inform them, that they may expect every comfort and attention, without the fear of being in the least disappointed. In Kreuznach there are a great number of elegant hotels, particularly on the Peninsula round the Assembly-rooms. Private lodgings may be had on various and moderate terms, suited to the most limited means. It is desirable that strangers, especially foreigners, should address themselves to the physician they intend to consult whilst staying at Kreuznach, that he may assist them in procuring suitable accommodation.

CHAPTER II.

CHEMICAL AND PHYSICAL QUALITIES OF THE MINERAL WATER.

Of the Saline Springs of Kreuznach, the most important is the Elizabeth Quelle; it is the most used, and the one on which the greatest care has been employed.

Those also of Munster Karls and Theodorehalle are not of an inferior quality, and are distinguished from all others in Germany by the rare chemical combinations they contain, and their richness in odine, brome, and muriatic and carbonic salts.

The celebrated chemist Liebig, of whom the Germans are so justly proud, first discovered the brome in these waters, and directed my attention twenty years ago to their great chemical properties.

The Elizabeth Spring contains, (at a temperature of 10.5° Reaum. or 55.6° Fahrt.,) in sixteen ounces of the water, the following chemical substances:

	GRAINS.
Muriate of Potass	0.9717000
„ of Soda	72.9223680
„ of Lithia	0.0750000
„ of Lime	13.2769370
„ of Magnesia	0.2515250
Bromide of Soda	0.3072000
Iodide of Soda	0.0032145
Carbonate of Magnesia	1.3511240
„ of Strontian	0.6835100
„ of Baryta	0.2994200
Proto-Carbonate of Iron	0.1993550
„ of Manganese	0.0095665
Alumina	0.0215320
Silica	0.3139530
	90.6864050

Besides these solid substances, we find carbonic acid in this Spring just sufficient to render it easily digestible, and not so much as to produce congestion of the lungs and head, as is sometimes occasioned by other mineral waters, richer in that gas.

The water of the source at Karlshalle, contains, in sixteen ounces, (at a temperature of 15° Reaum,) according to the analysis of Professor Osann :

	GRAINS.
Iodide of Soda	0.0440
Bromide of Lime	6.6025
„ of Magnesia	1.3672
Muriate of Soda	59.6651
„ of Magnesia	0.6786
„ of Lime	2.5612
„ of Potass	0.4071
„ of Lithia	0.0566
Hydromuriate of Alumina	0.4321
Muriate of Manganese	0.6538
Carbonate of Lime	0.6133
„ of Magnesia	0.4730
„ and Thermate of Iron	0.3645
Silica	0.0313
Acid Apocrenical, together with a peculiar resinous substance, whose solution in alcohol is altered by contact with the air, and deposits a brown residuum	1.4717
	75.4220

And also at the same temperature and $27^h = 2.3^m$ height of the Barometer, contains carbonic acid gas 3.98 Paris cubic inches.

The water at the source of the Scanienhof contains, from the analysis of Dr. Knapp, under the super-

intendance of Liebig, at Giessen, the following substances:

	GRAINS.
Carbonate of Lime	0.25555
,, of Magnesia	0.13018
Proto-carbonate of Iron	0.35623
Phosphate of Alumina.....	0.09541
Silica	0.99966
Muriate of Soda	108.70500
,, of Lime	22.74900
,, of Potass	0.46080
Bromide of Magnesium	1.78073*
Iodide of Magnesium	0.01247†
	135.54503

* With 1.543 grains of Brome.

† With 0.0113 grains of Iodine. The specific gravity of this water is 1.01325.

CHAPTER III.

HOW IS THE WATER TO BE TAKEN?

The water of the Elizabeth Spring is mostly drank pure, warmed or mixed with whey, milk, the juice of herbs, or other medicinal substances, but only in such cases as the nature of the disease or constitution of the patient requires.

It is a fact that small quantities of the water (two to four ounces) taken pure and as it flows direct from the Spring, are digested best, and with the most beneficial effect on the diseased organism.

Seldom more than six glasses (containing four to eight ounces) should be taken at one time. It is very advisable to walk between the times of taking the glasses, for ten or fifteen minutes, as it accelerates the digestion; but as the small quantity of carbonic acid contained in the water would evaporate during this time, it is best to drink them at the Spring.

The waters brought into contact with atmospheric air throw down a precipitate consisting of carbonate

of lime, protoxide of iron, protoxide of manganese, carbonate of magnesia, silica and alumina; the carbonic acid, although but in a minute quantity, increases its digestion and induces a quicker absorption of the efficacious substances into the blood; it revives also the nervous system, and excites highly the secretion of the urinary organs.

The same decomposition takes place if the water is kept in open bottles, or insufficiently corked; in the latter case, of course, it takes place more slowly. The difference in the effect of the Mineral Waters and that of common cold water is, that the first have the power to remove the morbid particles which are retained in the blood, and in the other organs of the body, and convey to it the salubrious properties of their own; whilst the latter remove, (and this in rare cases,) morbid substances only. In using the Mineral Waters this effect is quickly produced, often in a few weeks—from common water, months, sometimes years, are required to produce the same results.

CHAPTER IV.

ON THE EFFECTS OF THE MINERAL WATER.

The effect of the Mineral Water is to purify and improve the condition of the blood, acting first upon that contained in the port vein and the lymphatic vessels, removing therefrom the existing morbid depositions and facilitating the circulation of the fluids. The port vein is the vessel by which all fluids taken internally are resorbed, but the resorbed Mineral Water remains only a short time in that vessel, passing rapidly into the circulation. During that process the morbid substances become solved in the port vein under the influence of the water, pass the liver and become secreted with the bile, and so removed from the organism. The water of the cooler Elizabeth Spring is more exciting, and produces a greater increase of temperature than the water of the warmer springs; and by rousing more powerfully the digestive organs, will be easier absorbed, and will produce more beneficial results, while the artificially warmed water of the Elizabeth Spring, or the waters of the other sources, will be more suited to weak and irritable individuals. In such constitutions cold

water is apt to produce spasmodic contraction of the membranes of the stomach and bowels, the fluid passing rapidly from the stomach to the intestines cannot be absorbed, and causes diarrhœa.

If the intention of the physician be to purify the blood of the patient, he should lead him to understand that it is not by a daily relaxation of the bowels that the desired effects of the Mineral Water is produced—but that the absence of this result is more conducive to the reception of the water into the blood, and thence effectuates a powerful secretion of morbid substances, and an improvement of the fluids of the system.

It is a great truth, pronounced by Schultz—"Verjüengung des menschlichen Lebens"—that the immoderate use of cold water as practised in the cold water establishments is followed by jaundice and a morbid secretion of bile, if any relaxation of the venous or arterial system existed before or during its use.

Large quantities of cold water imbibed daily can only be productive of benefit in cases in which deposition of substances already taken exist in any organ, as, for example, in men accustomed to a luxurious diet and to the constant use of wines and spirits, for a long period.

The best time for drinking the Mineral Water is in the morning, when the sun has begun to warm the air and to awaken the functions to renewed action, and when the stomach is still empty, the nerves, blood vessels, and lymphatics are not yet influenced by food, and their absorbent powers and the sensibility of the nerves are in their full strength.

If the special case of disease commands the necessity of drinking the Waters twice a day, towards evening is the best time, but not sooner than three or four hours after dinner, and then taking only half the quantity drank in the morning. Sometimes it is recommended to take the Waters a few hours before dinner, but in such cases the breakfast and dinner must be very moderate in quantity, leaving an interval of two or three hours before and after the meal.

CHAPTER V.

DIETETICAL PRESCRIPTIONS.

No Mineral Waters demand such a cautious and strict dietetical regimen as those of Kreuznach; neglect in these particulars has frequently led to the worst and most dangerous symptoms.

A meal consisting of a few plainly prepared dishes, without condiments, is preferable to a table d'hôte, with its various covers. The physician will explain explicitly to the patient what edibles and fluids are best suited to a course of the Mineral Waters.* People

* In my former work, published in 1837, I believed it my duty to warn scrofulous individuals against living too freely on potatoes. Eminent medical men have agreed in this; and the minute analysis of chemists has proved that the blood of scrofulous patients is poorer in some salts, and in azote,—that it contains less corpuscular sanguinis,—that a part of these is solved in the plasma, and it consequently appears redder,—that acidity appears sometimes in the urine of scrofulous patients, sometimes benzoic acid,—that the bile contains, in many cases, less carbon, and that the venous blood is redder. Besides these physiological facts, experience teaches us, that scrofula is found more rarely where the food contains more azotic elements, particularly good flesh meat;

cannot be too cautious in reference to diet, whilst drinking the waters ; and I believe a strict regimen an absolute condition for the perfect success of the

and that where the diet consists more of farinaceous substances, which have less azote, and particularly of potatoes, scrofula is frequently observed. The meals of our ancestors were principally of animal food, milk and bread—all articles more or less rich in azotic principles; whilst in the present day, the lower classes—children, and often even infants—are fed too exclusively on potatoes. Scrofula was consequently a disease little known in old times, and seldom met with—a fact, certainly, to be attributed chiefly to the above cause, and to the less universal use of potatoes. In our own time, when the great chemists, Liebig in Germany, and Dumas in France, have directed their studies to the investigation of the process of assimilation in the human frame, the communication of Professor Mayer, of Borye, (Medic correspondenz blatt., No. 23, vol. III.) is of the highest importance. I quote his own words :—" We already know, from many experiences, the injury produced by eating bread which is only partially baked, and therefore more or less in a raw state; and we also know that obstruction of the lymphatic vessels of the intestines, enlargement and induration of the glands, of the bowels, scrofula, rachitis, and worms, are the consequences of such unwholesome diet. These unhappy effects are produced in an high degree, by living too much on potatoes, when their farina is eaten in nearly a raw state. In combination with the obnoxious effects from the potato flour in this condition, the acrid narcotic substance contained in the juice of the potatoes, is also to be mentioned. Many observations have been made on this subject, where meals of young, unripe, or but just ripe and fresh got potatoes are made, and the consequences that have resulted have been very symptomatic of poisoning. Not only should they at all times be avoided, but this esculent for common

course; without this it may lead to no remedial result, but be even productive of an increase of disease. Not less important than dietetical observances is the regulation of the clothing, suiting it to the constitution of the patient, the disease, the time of the day, and season.

The scenery alone would, and indeed has made the Elizabeth Spring the centre and point of attraction to invalids and tourists. Elegant hotels and private lodgings, houses and shops of various kinds, add to their convenience. The new Kurhaus (assembly-rooms) were opened to the public in 1843, and in their elegant and comfortable saloons afford a variety of amusement to the stranger; whilst large and

use should be well cooked with not too much water, or rather steamed than boiled, and then the superabundant moisture evaporated in the usual way, carrying with it the injurious narcotic principle. The best way of preparing potatoes for the table is to roast them in hot ashes, or on an iron plate. It would be important to know how much of the narcotic principle of the tobacco is taken in by people smoking or chewing this article, and its injurious results. We observe an obnoxious and debilitating effect caused by the narcotic element contained in the potato on the nervous system, and on the muscular membrane of the stomach and intestines in sensitive individuals who have a so-called weak stomach,—that is, a very feeble and irritable condition of that organ, and with whom a raw soup of potatoes produces a sense of palsaical debility in the stomach. These narcotic effects manifest themselves chiefly and more explicitly in weak, delicate creatures, when suckling their young, and particularly in the carnivorous animals."

covered walks yield protection to the promenaders during bad weather. They are built on a fine romantic spot; and although nature has done much for the beauty of the place, art has nothing neglected, to improve, by tastefully laying out the neighbouring grounds, and planting "shady groves and alleys green." Formerly, the visitors to Kreuznach were compelled to reside widely apart, in consequence of the scattered nature of the accommodation; and the interchange of mutual courtesies and the amenities of social life were in some measure restricted, from this cause; but the enterprising spirit of the inhabitants, coupled with the great increase of visitors, has occasioned very extended alterations during the last few years, in the accommodations for strangers, and the life and animation so characteristic of an agreeable Spa, are now more concentrated in the town. The Elizabeth Spring is most beautifully situated on a kind of peninsula, bounded on each side by two branches of the same river, near the junction of which the Mineral Water gushes forth, from amongst deeply-imbedded rocks, to minister to the health and relief of all who seek its re-invigorating aid.

CHAPTER VI.

ON THE BATHING ESTABLISHMENTS.

Most of the hotels and private lodgings fitted up for the accommodation of invalids, are provided with convenient baths; besides, there are some forty bathing rooms in the new Kurhaus, furnished in an elegant style, which not only the inhabitants of this establishment, but strangers, can use. These baths* receive their Mineral Water direct from the origin of the Elizabeth Spring, and the source situated not far from the middle of the river Nahe.

In arranging these baths the managers had particularly the design of bringing the Mineral Water into the baths direct, so that it should have not only the required temperature, but also should prevent the chemical substances contained in the Mineral Waters from being subject to decomposition while the water is warmed. The common method of warming would destroy much of the medicinal property of the water. This great difficulty has

* The number of Baths taken there during the last season exceeds 14,000.

been removed by employing the method of Mr. Schwarz, with some slight alterations, that is, warming the water by steam. The Mineral Water is driven by pumps, from the different wells, into a large reservoir, where it flows through pipes to the bathing vessels, in which the necessary quantity is regulated by cranes; while the water is running into them, the crane at the bottom of that which retains the steam is opened, and the vapour enters the space between the double partitions at the bottom of the tub. The superior wall consists of copper, the inferior of wood. The first is very quickly heated, and communicates its heat to the water in the bathing tub, so that the latter receives the temperature of 86° — 98° Faht., (24° to 27° Reaum.) in the space of eight to ten minutes. If the crane for the steam is closed, the copper bottom is quickly cooled again to the temperature of the water in the tub, so that the patient has no disagreeable sensation in sitting down; if he wishes, or the physician believes it necessary, a perforated board is laid at the bottom for sitting on.

The bath prepared in this way keeps its temperature thirty-five to forty minutes, according to that of the room; and even when the patient remains therein an hour or more, the temperature falls rarely more than $2\frac{1}{4}$° to $3\frac{1}{2}$° Faht., (1° to $1\frac{1}{2}$° Reaum.,) because the natural warmth of the human body

communicates itself to the water. There preparations are also made for warming the linen, and the cloths for drying the body after the bath; and the invalid is not annoyed by the inconvenient and very obnoxious method of drying the cloths with charcoal.

CHAPTER VII.

ON THE USE OF THE MINERAL WATER BATH.

The time for remaining in the bath is generally twenty to forty-five minutes, if the case requires it for exciting the blood and lymphatic vessels of the skin, to the absorption of the effective substances contained in the Mineral Water.

The temperature of the bath is to be regulated; seldom above 93° Faht., (27° Reaum.) and not under 79° Faht., (21° Reaum.) colder baths are to be recommended only in cases where the absorption of the medical substances of the water is not desired.

The baths are commonly prepared at the commencement, with only the pure water; in the course of time we add bittern (motherley); sometimes, also, other medicinal aids are used, such as decoctions of malt or herbs, solutions of iron, &c.; but, if possible, always with due regard to the chemical proportions of the Mineral Water. I tried, in the years 1826-27, to add graduated brine to strengthen the baths, but

the effect produced did not fulfil my expectations. The baths thus prepared are not, in reference to healing power, at all to compare with those made stronger, by the addition of bittern. A long continued course of the baths prepared with the water and brine produced symptoms of weakness, giddiness, dyspnœa, palpitations of the heart, bleeding at the nose, ecchymosis, bleeding of the gums, &c., results never manifested after a course of the baths with bittern.

The addition of bittern to the baths should only be practised under medical advice; and patients are cautioned against making arbitrary experiments, because the most objectionable results might ensue. The physician alone can judge of cases in which the proportionate quantity (suited to the malady and constitution of the patient) of the bittern that can be added to the bath.

It is usual to commence, generally, with one quart (or about four medical pounds) in the baths of adults, but only one quarter or one half part of that quantity for those for children, gradually increasing the quantity until the required effect is produced. Seldom more than twenty or thirty quarts of bittern are used in the baths, notwithstanding that there are cases which require an augmentation of forty quarts, or more, before the expected benefit appears. After the

desired result is produced, we diminish the quantity —not suddenly, but by degrees; for the whole object of this management would be destroyed by a too quick reduction of the effective power, and before the accustomed irritation of the skin has subsided; children and delicate females require, in most cases, very small quantities of bittern, and in many cases none, where the effect of the pure Mineral Water is sufficient.

The time of remaining in the baths for children and weak individuals should vary from five to twenty minutes; a stay of an hour or longer is only allowed to stronger persons.

Bathing twice in the day is only required in very rare cases; and whilst remaining in the bath the patients should keep themselves perfectly quiet (more particularly children and delicate persons); if they are suffering from indurations, swellings, enlargements, curvatures, &c., it is advisable to use gentle friction to those parts, which is best done by means of a soft sponge or brush; by this means circulation is assisted, and the lymphatic vessels become excited to an increased action, absorption goes on more rapidly, morbid depositions are attracted towards the surface, by which more important organs are relieved; the slight agitation of the water, too, caused by the motion required in rubbing, keeps it

in an even state, as otherwise the bittern is liable to sink to the bottom, from its great specific gravity.

Corpulent individuals, who are liable to congestion of blood in the head, are recommended to wash the head in cold water, and to be always assisted while in the bath by a servant.

After bathing, the skin should be dried with warm cloths, using gentle friction.

Children and invalids should remain quiet for some time, or try to sleep for half an hour, after the bath. Stout persons, or those subject to determination of blood to the head, are advised to take a gentle walk in the open air, avoiding the heat of the sun during hot summer days. Employment, or reading, or writing, is to be shunned as objectionable in all respects.

CHAPTER VIII.

ON THE CRISIS PRODUCED BY THE BATHS.

At the commencement, before an amelioration begins to be felt from the use of the waters, a greater excitement and a slight increase of disease appears in the morbidly affected parts; but this is to be regarded only as a favourable symptom, and one which proves that the organism is disposed and prepared for a complete and radical cure. This critical change appears at very different times—in one case earlier, and in another later; but in none before the organism, in all its parts, is impresed with the efficacious substances of the Mineral Water. This impression having been made is to be recognised by the general, and sometimes very great excitement of the nervous blood and lymphatic systems. The symptoms are commonly the following:—the head confused and aching, the mind sometimes agitated—sometimes depressed; there is frequently an anxious doubt of the possibility of the re-establishment of the health, joined to disquietude and sleeplessness. The limbs feel tired, weak, often trembling. The eyes and eyelids begin to swell, to grow red; the

conjunctiva becomes relaxed, its vessels enlarged and injected; the secretion of tears frequently augmented; a stinging pain in the ears, which runs along the eustachian tube; the nose becomes a little thickened, red, and secretes a watery, sharp, limpid humour, which excoriates the nostrils and excites frequent sneezing, as if from cold; the whole nervous membrane of the nose, frontal bone, and antrum higlemori, is in a loosened and irritated state; and also of the mouth, throat, larynx, trachea, and bronchial is relaxed, and frequently also a peculiar glutinous, often disagreeable smelling, salivation ensues, but never bleeding of the swollen gums, and rarely accompanied by apthæ or little ulcers, as happens in the salivation produced by mercury. In conjunction with these symptoms, there is, in most cases, sensibility of the margin of the tongue, elevation and redness of its papillæ, great desire for cooling drinks; also, an anxious sensation and pressure at the chest, a quick, hard, and short beating of the heart and pulse, with great general feeling of heat. The appetite that was shortly before very good, is diminished; obstinate costiveness is present, and nausea and vomiting, of a green thick glutinous mucus, often appears. While the action of the digestive organs is diminished or troubled, that of the kidneys is mostly augmented and altered; in reference to quality, the urine is of a greater specific weight, smells disagreeably, and we observe in it frequently a thick

mucus, sometimes blackish, sediment; the swollen, thickened, and indurated organs and enlargements become sensibly painful and more swollen; the ulcers alter their shape, and the secretion, which latter is often rendered more fluid, less in quantity and fetid; the diseased bones enlarge in volume, and become often painful, in a high degree; if they are subject to an ulcerative process, the margins of the ulcers become altered. Nature works powerfully to remove all morbid matter from the fluids of the body, as well as from the solid organs; and this critical movement now just described either effects this object or prepares it.

The general excitement lasts mostly from twenty-four to forty-eight hours; in rare cases, several days. The skin becomes now the organ of the critical secretions. Small pustules filled with lymphatic matter or pus, and very similar to those of the small pox, arise on the surface of the skin, and sometimes even like large ulcers, deeply seated in the skin, and the annexed cellular tissue; to these material morbid depositions, come mostly the small, hard, reddish, pointed lumps, which correspond with minute morbidly enlarged glands of the skin.

In cases in which albuminous depositions, tuberculous formations of a scrofulous nature, formerly not often suspected existent in the organism, we

often perceive, as a symptom of the saturation and of the critical movement, spots of a blue colour, round shape, of the size of a dollar, or even larger, and not unlike the discolouration caused by a blow. These spots are to be found on different parts of the body, on the lower part of the belly, on the arms legs, &c., and disappear after a few days. I found them in many cases as symptoms of the removal of formerly existing disease, and interruptions of the organs of circulation and respiration; then as symptoms of the absorption of albuminous and tuberculous depositions. At the commencement of the appearance of these symptoms of a general critical movement an aversion begins, in many cases, to the further use of the Mineral Water—a sure sign that in the way it has hitherto been employed, its further use is not expected to be of any salubrious effect, and that the quantity of the water is now to be diminished, or left off for a few days, or the whole course of taking the water internally to be ended. It is necessary to decrease during the critical movement the strength and duration of the bath, in proportion as the quantity of Mineral Water taken internally is diminished; and also in cases where an entire interruption of the water course is advisable, for a few days, sometimes for weeks and months, and without its being intended to be again resumed, many instances of diseases require a repetition of a course of the water after longer interruptions. Inve-

terate cases require a repetition of the use of the Mineral Water, still in the same season, to prevent the disease taking root. We expect always more and better effects by such courses, interrupted by pauses of four or six weeks, and recommenced in the same season; more particularly with younger individuals and delicate females, than by one continued use of the Waters.

CHAPTER IX.

ON THE APPLICATION OF LOCAL BATHS.

I EMPLOY, in many cases, with the most satisfactory results, the application of local or partial baths, together with general baths, or without them, as the case requires; by these I understand the slipper bath, baths of the nose, of the hands, of the legs, &c.; these and also fomentations, wet envelopes, injections, douches, the rain bath, &c., are to be mentioned,—all employed in many diseases of single parts, with good effect.

The local applications of the Mineral Water are made of any strength, with or without the addition of bittern. For these fomentations and bandages the wet flannel is to be preferred, enveloped cautiously with oiled silk. I found this method the surest preservative against all catching cold; it allows the patient to remain in the free air, and to take walks at any temperature. If there exist wounds or ulcers, we put on them rather wetted lint or linen, over which the fomentations are made, covered with oiled silk. The employment of our Mineral Water,

with or without bittern, in the shape of injections in the different excretory organs of the body, has also proved useful in many diseases. The same good effect is produced by the snuffing in or gargling with the water. The gargling, with or without bittern, cannot be sufficiently recommended in all diseases of the mucus membrane of the mouth and throat, whether they may possess a scrofulous, mercurial, syphilitic character, or if there are loosening, enlargement, ulcers, even polypi; or disorganisations or dispositions to them in the aforesaid existing.

CHAPTER X.

ON THE USE OF THE SHOWER BATH.

The shower bath of tepid, or cold water, directed to the head, the spine, and the whole back, during the times of taking the bath, or afterwards, produced the best effects in all cases of congestion, of blood to the head, of inflammatory, irritability, of enlargement, of single or several vertebræ, where the employment of douches would have been too exciting. The douche baths are to be recommended in cases which require exciting, vivifying, and reabsorbing power. The greatest caution must be taken in reference to their strength, duration, and temperature; an inappropriate management of the douche bath renders it of no use, and rather obnoxious than otherwise. The douche baths are to be applied only by well-experienced people, and it is of the greatest consequence that the physician marks accurately the time of the douche, and the pauses to be made between each single one; the temperature, and the mixture of the water employed and the distance from which the stream of water is to be directed to the morbid part. The temperature of the water employed for douches changes according

to the case, between 58° to 86° Faht. (10° to 24° Reaum.) The douche should be continued from five to twenty-five minutes at the utmost, when we are not counting the necessary intervals. To use the douche daily is rarely to be recommended, because great excitement is easily produced by this powerful agent.

CHAPTER XI.

ON THE USE OF THE VAPOUR OF THE MINERAL WATER.

The heated vapour of the Kreuznach Spa in diseases of the eyes, has been employed by me with great success in scrofulous inflammations of the eyelids, or eyes, particularly for removing the scrofulous photophobia; eyes affected so that they could not bear the daylight for whole months, even sometimes for years, where the patients hid their faces in the cushions of the bed from morning till evening, experienced relief in a short time after the use of a few baths of this kind. I observed that the eyelids spasmodically closed against the light, just before the bath; opened by degrees, even in full daylight, soon after the evaporation commenced, and the vapours reached to the face, so that children, suffering from this affection, began to play in the water: equal effects are often produced in the same disease, if the patients remain for sometime in a room filled only with vapours of the Mineral Water.

CHAPTER XII.

ON THE USE OF THE BATHS IN DISEASES OF THE RESPIRATORY ORGANS.

The vapours rising from the heated Mineral Water; the vapours rising from the boiling pans, during the fabrication of the salt; and also the vapours produced by the evaporation of the brine, in the buildings for graduation, and containing the graduation pans, and that in calm warm weather, entirely envelop these buildings, are of the highest importance in scrofulous and tuberculous diseases of the larynx, trachea, the bronchial membrane, and the lungs, and are far preferable to all other methods of using the Waters.

A. Vetter, the excellent writer on Mineral Waters, says, in his reports of the establishments of Mr. Struve, p. 182, vol. I:—"There is no remedy to be compared in tuberculous diseases of the lungs, in reference of healing power, with the water of the Kreuznach Elizabeth Spring." For many years I had frequent opportunities of observing the highly beneficial effects in the above diseases, by the use of

the vapours rising from the Mineral Water in the bathing vessels, from the walls of graduating houses, and from the boiling pans. As the sojourn near the graduating works is made sometimes impossible by cold or rough weather, wind and smoke, particularly in wet foggy summers, I embraced, with the greatest interest, the opportunity offered in the new hospital to establish the vapour bath, in such a way that all the bathing rooms in this house may be prepared for the use of vapour baths in the space of fifteen minutes. For that purpose the steam valve of the bathing tub is opened until the Mineral Water has attained the temperature of 140° to 149° Faht., (48° to 52° Reaum.) By means of this heat, such an evaporation takes place that the whole room is filled with vapour, and the patient is obliged to breathe it, and may, as he likes, or as it is ordered, either slowly walk round in the bathing room, or lie quietly on the sofa, reading or otherwise amusing himself. The employment of the vapours of the Mineral Water, against scrofulous and tuberculous diseases of the respiratory organs, is greatly to be preferred to the employment of them in the rooms built on or over the boiling pans of the salt works, because the temperature of the vapours rising from the boiling pans cannot be regulated by the physician. If salt is to be produced by the process of evaporation, the water must be continually at the boiling point; of

course, the steam created in that way is much warmer than in our method; and, if it be breathed at its higher temperature, it stimulates too soon the nervous membranes of the organs of respiration; likewise producing great excitement of the whole organism, congestion of the blood to the diseased organs, and frequently blood spitting,—especially in such patients as are subject to attacks of this kind.

Besides these great advantages of the new method, another is still to be named, viz, that the physician, if the especial case requires it, can add bittern, or other powerful medical ingredients, in any quantity, to the pure Mineral Water and brines, so that any medicinal substance, which is capable of evaporation, can be applied to the organs of respiration. Lung baths of this kind are surely one of the most important adjuvans to a bathing establishment. The high advantages of them for many patients, suffering from scrofulous and tuberculous disorganizations and morbid affections of the organs of respiration, will become more manifest every year; and Kreuznach will secure more and more the position it has already taken, in the first class of bathing towns. The use of these lung baths is particularly to be recommended as a preservative in hereditary disposition to diseases of the pulmonary organs; likewise in all cases where the death of one or several members of a family has already happened

by tuberculous and ulcerative phthisis, but especially where the parents have succumbed to these diseases. If there is a radical cure in those cases to be expected, a sojourn of three to six months in Kreuznach is required, which should be repeated for several summers.*

The new experiences of Nipples and De Crozants confirm in an extraordinary manner those I have already communicated in 1837, C. C., p. 203,

*A gentleman, fourteen years of age, very delicate and slender, one of a family in which two of the brothers had already died of phthisis tuberculosa of the lungs, had had the diseases of childhood, with more or less difficulty,—suffered several times already from pneumonic and pleuritic inflammations, occasioned by local tuberculous disorganisations. Bleeding, with external remedies, irritating the skin, together with able medical and dietetical attention removed them; but at every trifling cause they returned in a frightful manner. In the year 1826 he commenced, for the first time, to bathe, drink, and take lung baths of our Mineral Water, under my guidance, the result of which was, that the circumference of the chest, hitherto very small, became visibly greater; the patient began to ascend stairs, and walk up the hills, without feeling any pressure at the chest; the irritation, which caused him frequently to throw up a quantity of clear transparent mucus, frequently interspersed with masses of an opaque bluish gray colour, diminished; the pulse, which, previously, was hard and quick, became more free and slow; the blue tinge of the lips, that appeared whenever he was excited, was no longer seen, and they resumed their natural colour; the coldness of the feet ceased; likewise the frequent

which prove that, with the eruption of the above-described blue, critical scorbutic spots, where no other symptoms co-exist, the very amelioration of the patients, suffering from tuberculous affections of the lungs, commences; and that these individuals begin from this period to be in the enjoyment of good confirmed health.

hemorrhage from the nose became more rare. The following winter passed, although not quite without some affection of the chest; still he was much better than in the previous one. During the summer 1827, a very favourable one for such patients, the same course of the Mineral Waters was again resumed, for eight weeks, during which time he remained almost whole days at the graduating houses. In the sixth week, with the fortieth bath, and ten quarts of bittern, the large spots before alluded to, of a blue colour, appeared, covering the arms and feet, and especially the back and chest. After the breaking out of this eruption, the respiration became freer, the chest expanded, and the constitution became more capable of resisting atmospheric changes. The muscles of the arms and legs became fuller, and the youth who hitherto had avoided the sports and exercises of his comrades, now joined them with spirit and vigour. He left Kreuznach for Switzerland, where he remained for a year, then passed several years in England, enjoying full health—although neither of those countries are advisable for persons subject to such affections. I will further add, that this gentleman still enjoys perfect health—has been married now two years, and is the father of a strong, healthy child, presenting no symptoms of scrofulous or tuberculous disease.

CHAPTER XIII.

THE DISEASES BENEFITTED BY THE WATERS OF KREUZNACH.

In those diseases, whose chief characteristic consisted in a dissolution of the fluids of the organism, with or without any material alteration of it, the Waters of Kreuznach had acquired for many years great celebrity.

A.—Scrofula.

All I stated in my previous work (pages 116, 117) has proved fully correct, and been borne out in some thousand cases of this destructive disease. No period could have been selected more appropriate for confirming and making known the qualities of a Mineral Spring, proved to be so beneficial in scrofulous affections, and so quick in its remedial effects, as the present one, for, throughout all the civilised world, scrofula is to be found. Never was the style of living more perverse, or more calculated, particularly among the higher classes,

to develope this insidious disease in families where it had not hitherto become hereditary; and, coupled with this, the education of children, from their earliest years to their entrance into busy life, combine to render them still more prone to scrofulous affections,—and when these affections once make themselves apparent in a family, they are transmitted from generation to generation; deteriorating it more and more, if nothing be done to restore to its normal condition, the now vitiated constitution. The Mineral Waters of Kreuznach have received ample testimony to their efficacy in all forms of scrofula, wherever the depositions or disorganizations it causes exist. Amongst these may be enumerated,

1.—Scrofulous swellings and indurations of the glands, mostly observed in the neck, in the breast, loins, under the shoulders, and in the glandular organs of the abdomen. These become absorbed by the powerful excited action of the lymphatics, and the scrofulous matter is carried off by the various secretions.

2.— Scrofulous affections of the eyes and eyelids; inflammation, with inability to bear the light, so that the patient is obliged to sit for weeks or months together in darkened rooms; spots on the cornea; swelling of the eyelids, &c.

3.—Swellings and relaxation of the mucus membrane of the mouth and throat, combined with ulcers of a polypous disposition ; chronic, and often fetid secretion from the mucus membrane of the nose, and other passages ; induration and ulcerations of the uvulæ and tonsils.

Much experience in this branch of pathology has induced me to examine, with the greatest care and exactitude, the mouth, throat, and nose of all scrofulous patients, particularly of those which are before or about the age of puberty, when the tonsils are found swollen, ulcerated, and in some cases covered with cicatrices, the mucous membrane relaxed and of a dark red colour, and of which the patients were not before aware, or never complained of. I at no time doubt but that there is a predisposition to this disease, which is apt in almost all cases, to go over to phthisis. An exact examination proves this disposition in most cases to be hereditary, in rarer ones acquired ; after having observed these local affections, the physician should use every diligence to eradicate this phthisical tendency. In such persons, a course of our Mineral Waters used for some months with care, produced the most happy results.

The muriate of lime contained in the Mineral Water, is doubtless a most efficacious agent in all phthisical affections, an observation Beddoes most

fully coincides with, and I am not less inclined to ascribe the great success of our Mineral Waters to this powerful remedy.

B.—Swellings and Indurations of the Glands of the Belly.

The glands of the abdomen, the liver, pancreas, spleen, kidneys, the mesenteric glands become frequently affected in childhood by scrofulous, herpetic, and other dyscratic affections and indurations, but more especially during the period of the first and second dentition. Enlargement, stoppage, and indurations of these organs, often combined with some disarrangement of the stomach and intestines, frequently producing dangerous symptoms in those parts of the frame, also an irritable condition of the respiratory organs, and still more frequently of the brain and its membranes. This altered condition of the internal organs, and consequent irritation, inclines to congestion of the lungs and brain; there becomes then great danger, if they are not removed by appropriate remedies, and the functions of the digestive apparatus restored to its due order, of tuberculous depositions being formed, which pass to suppuration, and progress to phthisis, after a lapse of time.

I had every year many opportunities of observing the powerful healing qualities of the Elizabeth Spring in diseases of this kind, and affections of a similar

class, and this not on children alone, but, more frequently still, with older patients, and those about the age of puberty. I have witnessed the efficacy of the Water of this Spring in restoring health in cases where medical art had suggested no hope.

C.—Diseases of the Breasts and Sexual Organs.

In my former works I drew attention to the great and rapid success that resulted from a use of the Waters in chronic indurations and swellings of the glands of the female breasts; my former observations have been confirmed, in repeated instances, during the last few years, in numerous cases of swellings of the glands, often combined with indurations of alarming character,—so much so, indeed, that many eminent surgeons believed that an operation was inevitable. Where the lacteal and lymphatic vessels were thus diseased and knotty, even to the shoulder, the Mineral Waters have restored the vessels to a healthy action, and removed the morbid depositions, and the patient has been restored to health,—and this has been followed by no recidivation.*

There have been under my care cases of degeneration of the glandulæ mammæ et axillaris, already

* A lady, twenty-five years of age, married, without children; she was troubled in infancy with scrofulous disease. The menstrual discharge appeared with chlorotic symptoms,

progressed to cancer apertus, in which frequent hemorrhages, with constant pain, destroyed the last remains of strength; and where it was not possible for the Waters to effect a cure; and where, too, the skill of the physician proved of no avail, yet even in these cases, under their use, the hemorrhage subsided,

and was afterwards irregular, with violent pain in the back, abdomen, and chest; the discharge continued for a day, or a day and a half, of a natural colour, it then became pallid and corrosive, and there was frequent retention of urine. She was married at twenty. She came to Kreuznach for relief, after having tried many medicinal means to obtain it. She was pale, and emaciated, and chlorotic; she was afflicted with fluor albus, which excoriated the legs and made every movement painful. The digestion was bad, and the motions without bile. I found, on examination, that there was relaxation, with a thickening of the mucous membrane of the vagina, and also of the collum uteri, which was likewise indurated and inclined backwards, so that the os uteri was directed towards the bladder, which occasioned retention of the urine: the right ovarium was enlarged to the size of a nut, indurated, and painful to the touch.

I advised the bath, injections, and to drink the Waters. In three weeks the patient looked better, digestion was re-established, the mucous membrane of the vagina became of a more natural colour, the discharge began to cease. In six weeks, during which time the menstrual discharge appeared without pain, the extreme sensibility and enlargement of the ovarium had almost entirely disappeared, the swelling of the collum uteri still remained, but soft, so that after forty-five baths and about one hundred injections, we were convinced, that in a short time, she would be entirely cured; and in a year afterwards, I was informed that such was the case, and that she had been confined of a healthy child, and that none of the former symptoms had returned.

and the pain was so far relieved, that the patients have at least regained their nightly rest.

Patients labouring under these disorganisations, whose glands, or even the whole breast, had been removed by operation, and in whom, some time after the operation was performed, new indurations reappeared, involving the ribs themselves, in the same morbid process. Yet, even in these instances, I had the satisfaction of seeing an arrest to the progress of disease; so that the fatal consequences, that are so often the conclusion of these destructive affections, were, in some cases, totally removed, and, even in the worst, life was prolonged by the judicious use of the Mineral Waters of the Kreuznach Spring.

Although, in complaints of this character, a perfect cure can, in many instances, hardly be hoped for, or even an amelioration, but, simply, a maintenance of the general strength, and a suspension of disease acquired, results attained, by the employment with sufficient care of the Water, its powerful efficacy in diseases hitherto so inevitable in their progress, have been shown, and it has been proved, that an early and persevering course is able to remove the predisposition to such diseases, most frequently the disease itself, and to re-establish the health.

These remarks lead to the consideration of those, too, affecting the generative organs of women.

The female sexual organs are, more than any others, inclined, if there is any scrofulous or other taint in the system, to disorganisations and depositions, of various kinds, against which the external and internal use of these Waters has proved most efficient for many years; and more particularly in the following diseases of the genitals, for which I have long employed them most successfully:

1.—In cases where the functions of the womb are going on feebly, or with irregularity, or sometimes entirely depressed; and combined with debility of the nervous system, violent convulsive fits, at the time of the monthly period, if the secretion at such times is altered, showing a reddish green, or yellow colour, of an unpleasant odour, and continuing with little intermission.

2.—In and after catarrhs of the uterus, which often leave a colourless albuminous discharge, frequently flowing, and which is repeated periodically. Women rarely conceive when suffering from these diseases; or, when such is the case, abortion is easily produced, until the womb and its ovaries are restored to their natural state.

3. In swellings of the said organs (hyperamia) which mostly have their seat in the mucus membrane, and are commonly produced by tuberculous depo-

sitions, appearing principally in young subjects, from the age of puberty to the thirtieth year, and which are often met with in scrofulous disorganisations of the abdominal vessels and the peritoneum; they are also frequently caused by too large menstrual secretion, or obstructions to the due circulation of the blood,—and for this reason we find them also frequently joined with chronic diseases of the lungs, organic affections of the heart, with chronic status, and its consequences in other organs,—in the brain, liver, spleen, and especially in the rectum.

4.—In leucorrhea, produced by a disordered action of the uterus, relaxation and swelling of the mucus membrane, and of the glands of the vagina and uterus.*

* Mrs. A., the mother of three children; since the birth of her last child, now sixteen years of age, was not subject to the usual critical evacuation, or affected by any complaint of the sexual organs. She lost the left breast seven years ago, which was amputated, in consequence of disease. After some time hard, knot-like, rigid indurations became perceptible near the axillæ, but not painful. Both ovaries were swollen, and gave a disagreeable sensation on being pressed. At the right side of the os uteri (which was enlarged) there appeared at the same time a tumour about two inches in length and breadth attached to the ovarium on the right side. In this state she came under my care, to use the Mineral Waters, which she persevered in for two months, during which time the swelling in both ovaria disappeared, the tumours dispersed slowly, and by degrees became entirely eradicated, and several years have elapsed without any returns of the symptoms.

5.—In all ulcerative disorganisations, originating in chronic inflammatory affections of the mucus membranes of the vagina and follicular substance, particularly if they are combined with specific dyscrasies. These disorganisations commence, generally, on the portio vaginalis, spread from thence by degrees deeper into it. In consequence of chronic inflammation the tissue of the affected part becomes hypertrophied, causing very frequently most serious

Mrs. K., a married lady, twenty-seven years of age, never been confined, from a scrofulous phthisical constitution, suffered for many years from a knotty, hard, insensible, and moveable tumour, of the size of an egg, in the left breast. Her medical attendant recommended removal by the knife, but she could not muster sufficient resolution for the operation. At this time there arose, too, a white swelling, which was of considerable size, and situated a little above the knee, so that every movement became difficult and painful; with these she also suffered from fluor albus and irregular catamenia. She was induced to try the baths and waters of Kreuznach. I ordered baths made gradually stronger with bittern, to drink the water, and use fomentations with the mineral deposit taken from the evaporating reservoirs. After the twenty-fourth bath the white swelling was perfectly removed. She could ascend the hills in the neighbourhood. The tumour in the breast softened, and absorption took place slowly at first, but accompanied by regularity of the catamenia, and diminution of the discharge. After forty-five baths the fluor albus was perfectly cured, the tumour of the breast reduced to the size of a small nut, and soft. In three months afterwards, during which time I advised the discontinuance of the waters, I received the satisfactory account that the induration of the breast was entirely gone from the after effects of the Mineral Waters.

disorganisations. In cases of this kind, where ulcers, as large as a half-crown, sometimes have been found, from the disease having for some time existed undiscovered, the greatest benefit has been experienced from a continued and appropriate course of the Waters.

6.—In all albuminous swellings, which are situated in the parenchyma of the uterus, and which manifest a disposition to pass into a cancerous state at the climacteric period if they are not previously recognized, and removed by absorption. The portio vaginalis is generally the primitive seat of these disorganizations, while tuberculous depositions commence generally from the tubes of the womb. After having ascertained the diagnosis of the disease, which is easily done in most cases by the aid of the speculum, it will be found to yield generally to the same plan of treatment.

7.—Atrophy of the portio vaginalis, in scrofulous constitutions, has frequently come under my notice, and is one of the most frequent causes of sterility, and subdues, if not early remedied, all power of conception. By an extended and discriminating employment of the Waters of the Elizabeth Spring, there has often been effected a perfect cure, and the result has been that conception has taken place in due course.

8.—In diseases of the womb and ovaries, characterized by new formations and tumours of a fibrous character, and always combined with plethora abdominalis, which affections we observe much more prevalent than formerly. These fibrous tumours, seated in the walls of the uterus, variously situated, and often of different sizes in the same subject, admit no possibility of cure; but it, nevertheless, is a gratifying fact, that the use of the Kreuznach Waters not only arrested their progressive enlargement, but in many instances effected a reduction of their size. I know a lady who has had, for more than ten years, two extensive tumours of this nature in the tissue of the womb, and who not only preserves her life, but gains also the power of being useful to her family, and happy in their society. The tumours have not enlarged since she used the Waters, but have in reality become smaller.

9.—Tumours seated frequently in the ovaries, or their neighbourhood, particularly in the cellular tissue, between the plates of the peritoneum, of the ligimenta uteri lata, and the tubæ, described in many cases, erroneously, as hydrops, have also been treated here successfully. In the commencement, these new formations (clystæ) appear of a fleshy firmness, round and sensitive, even at certain periods painful, when pressure was exerted in the depth of the pelvis. They are of a fibrous, serous nature, and with their

increase in size, the walls become thinner. Sometimes they contain a clear thin fluid, and occasionally a yellow tar-like substance; in some instances, too, they are divided in different cells, filled with much thick folliculous matter. They generally are caused by inflammation resulting from some external cause. In scrofulous tuberculous dispositions, there are mostly these new organizations, in which the particular development of the cystæ once roused, they progress of themselves with great rapidity. In other cases they remain quiescent for a long period, never even interfering materially with the healthy condition of the organism, if no other local or general cause gives a new impulse to the morbid life in one or several of the tumours. It more frequently occurs that a new inflammation, which extends itself to the peritoneum more and more, and which occasions adhesions with the neighbouring organs, accelerates their growth, and they begin to enlarge, fluctuate, to leave the pelvis, and rise in the abdomen, so that the patient becomes aware of their existence. No scientific man will expect a perfect cure in such cases as these, from either medicine or any other means, but will be satisfied if he can only feel certain that there is any remedy that possesses the power of arresting the development of these tumours. At the earlier stage, when these tumours are only fibrous cysts of a small size, and not yet ascended out of the pelvis, I have seen them removed,

and health perfectly established, by the employment of the Mineral Waters. In cases where the tumours had already attained a large size, I found a course of the Waters internally and externally used, produced a softening of the interior of them, which became of a viscid tar-like consistence, and which was removed by easy and safe means, so that health was entirely restored. It is a certain symptom of improvement, when tumours of the uterus, ovaries, or annexed organs, grow more sensitive, increase in size, and become porous. If these, the symptoms of a commencing improvement appear, the patient requires the greatest attention on the part of the medical attendants; as also does the disease itself, and a careful removal of all exciting causes.

10.—In profuse hemorrhage, appearing at the time of the monthly catamenia, which often last ten or sixteen days, the cause of which is mostly to be found in a scrofulous constitution, and the lax state of the genitals. They commence discharging generally at about the thirtieth year; and more frequently with married females, who have never borne children, than with mothers and unmarried women. These hemorrhages admit of a cure, the most mild and advantageous, from the Waters.

11.—Metrorrhages, occasioned by carcinomatous disorganisations and ulcers, which often resist all

means, both internal and external, for their relief, have found the best amelioration from the Waters, used as injections, slipper baths, and clysters; a radical cure was not certainly procured, but this treatment had the effect of limiting, modifying, and in some instances, entirely checking the hemorrhages, in consequence of which, the strength was restored, and the sufferings of the patients for a long period removed.

Before closing this section, I cannot resist communicating the following cure :—Mad. M., twenty-four years of age, and mother of several children, of a leucophlegmatic constitution and sanguine temperament, came under my care, sent by an eminent physician, after having used different baths under the direction of medical men, of acknowledged eminence, but without success. The results of the examination were as follows: The lady was labouring under great depression of mind; had lost her colour; the eyes appeared inflamed—looked very pale, with the eyelids inflamed; the hands and fingers snow-white, cold, and wax-like; the finely-moulded form emaciated, and the ankles œdematous; the lips and the gums pallid, and very much disposed to bleed. On the left side, from the eighth to the twelfth rib, there existed a soft fluctuating lymphatic swelling, of the size of a hand, over which the skin presented no peculiar difference in colour from that of the surrounding parts; the abdomen enlarged and

overhanging; the liver soft, and of considerable size, periodically sensible; there were experienced, also, at times, pains in the direction of the spleen; through the skin of the belly, the fundus uteri was to be felt very sensibly, and one inch and a half beyond the margin of the os pubis, much expanded in the centre; both ovaries, but especially the left, were painful on pressure, and enlarged to the size of a goose egg. On the internal side of the leg, great varicose veins existed; the patient complained, especially, of a continual and painful sensation of heaviness in the direction of the kidneys and the os sacrum, with a disagreeable feeling of cold, which I have observed nearly always existing in the more violent diseases of the womb, particularly in carcinoma. With these sensations a continued bearing downwards existed, as if something was falling from the vagina, with continued pressure on the bladder. Fluor albus always was present—sharp, and of fetid odour, which irritated the external lips and thighs, and was only interrupted by the very profuse monthly period, lasting eight or twelve days, and returning often at the fifteenth or sixteenth day, when much thick black coagulated blood followed. During it, the patient was obliged to remain constantly in a quiet position. These symptoms made examination necessary, which, after an injection of pure tepid Mineral Water, I made, and found the following:—Expanding with the finger, the external parts

appeared rather relaxed, but not hard; the warmth of the vagina greatly heightened, and very small lumps were perceived. The portio vaginalis stood high, and inclined backwards, thickened and sensible. A slight pressure against it produced the discharge of some dark thin blood. The body of the womb was hypertrophic in its walls, enlarged and sensible. The fundus had an inclination forwards.

Both the ovaries were sensitive to the touch, and, as I remarked, already enlarged. The examination with the speculum of Charrier (which caused pain on its introduction) gave the following results. In the mucous membrane, of the farther half of the vagina, were many swollen, thickened, and small pallid glands, from which came, on the application of a little pressure, a rose-coloured, mucous watery fluid; in some places, superficial sores of the mucous membrane existed, whose middle appeared of a bluish red colour. Like sores existed, too, at the portio vaginalis, but which penetrated deeper in the substance of it; with red, yellowish, matter in the centre, and bled easily. The os uteri, particularly its anterior lip, was greatly enlarged, its colour dark bluish red. At different places some varicosities appeared in the surrounding parts of it. Small piles existed at the anus, which bled sometimes.

The digestion was bad; the pulse thin, soft, but

not feverish; the respiration, on quick walking, short and hurried, together with violent beating of the heart. There was frequently roughness and itching in the throat, coughing, with a particularly long duration of the monthly period.

Sleeplessness with trembling, on the slightest occasions, was also an attendant condition. With such symptoms I began to employ the Waters with but few expectations. At the commencement the baths were of ten or twelve minutes, at 25° Reaum., prepared of pure Mineral Water, at the same time using twice daily, cool lavements, and injections in the vagina. The hemorrhage and fluor albus quickly diminished, the digestion and sleep were better. I increased the duration of the baths, and advised still a sitting bath in the evening, with constant breathing of the vapour of the Water. After thirty-six baths, the strength and digestion improved, and the functions of the uterus became regulated. Commencing to drink the Water of the Elizabeth Spring in small, and by degrees, increasing quantities, which never exceeded twenty-eight ounces daily. I need scarcely remark that the lymphatic swelling, the region of the liver and spleen, likewise the skin of the abdomen, in the direction of the uterus and the ovaries, was rubbed, while in the bath, with a sponge, until it got red; the injections were augmented to four daily, and some quarts of bittern added to the baths.

After the use of eighty-six baths, interrupted partly by the monthly period and partly by judicious pauses which I thought necessary, I had the great satisfaction of seeing such an amelioration of the whole symptoms, that the countenance assumed a fresh and cheerful appearance, the eyes and respiratory organs gained their normal functions, the lymphatic swellings and the enlargement of the liver, the pains in the latter and the spleen, had entirely vanished. The enlargement of the uterus, especially the sensibility of the left ovarium, the leucorrhœa, and the disorder of the menstrual period were all lessened after the fifty-ninth bath ; but the hypertrophic state of the ovaries and the portio vaginalis remained still to the seventieth bath : after this time these also began to grow smaller, and to acquire their true shape, with the regulations of the functions of the uterus, and perfect health at the same time.

Now, after some years have elapsed since this cure, I can only state, that the success *has been a lasting one*.

D.—Diseases of the Male Genitals.

Under which head are to be included almost all diseases produced or co-existing with scrofulous ghonorrheal, syphilitic, mercurial, or tuberculous dyscrasies. In these disorders the Waters of the Mineral Springs are most successfully used ; and also

in affections of the mucous membrane of the urethra and bladder, with and without thickening, or other disorganization of the walls of these organs. Secretion of mucus in the urethra, catarrh of the bladder, of which any of the above-named dyscrasies may be the cause, and which are frequently accompanied with piles, acquired here, like the diseases of the mucous membrane of other organs, a perfect cure merely by drinking and bathing.

In chronic blenorrhœa of the urethra, occasioned by ghonorrheal infection, which soon assumes a pertinacious character, by dietetical errors or improper medical treatment, the use of the Mineral Water, containing iodine and bromine, procures the same happy results, which Ricord alludes to with so much praise, and ascribes to hydriodate of potash. Diseases of the respiratory organs, the eyes, nose, the skin, and various tetters, &c., produced by incautiously and too quickly suppressed ghonorrhœa, healed often by the use of the baths and the drinking of the Water of the Elizabeth Well; the ghonorrhœa, which was stopped many years ago, recommenced, and its course was attended to with caution, until it ceased.

E.—Ghonorrhœa Steatoma.

The ghonorrhœa, tuberculous formations, (steatomata ghonorrhœa) produced by frequent and long-

continued ghonorrhœa. In these cases the patients were completely cured, whenever they placed themselves, in sufficient time, under the influence of the Waters. It is of the highest importance to discern, if these formations exist only in the scrotum, or if they have already entered other organs; in the first instance, there is every hope of cure,—in the second, there can be little or no certainty of the re-establishment of the health.

F.—Diseases of the Prostrate Gland, and the Urethra.

Formations and hypertrophies of the prostrate exist frequently alone,—more often still combined with stricture of the urethra, chronic inflammation, and neuralgic irritability of the neck of the bladder, and the bladder itself; inveterate catarrhs of the bladder, joined to a thickening and stricture of the intestinum rectum; after, inflammation of the urethra, abscesses, infiltrations, and fistulous openings, in the peritoneum, frequently make their appearance. These diseases develope themselves more rapidly at a maturer age, when the physician is bound to be more cautious in ordering the usual powerful remedies,—as bleeding, full diet, &c. A well-directed and cautious use of the Mineral Water, with suitable diet, will effect a permanent cure of these painful and complicated diseases.

No complaint requires greater care than this one, and a more varied method of application of the Mineral Water; whilst, at the same time, the sufferer is in no disease so well rewarded for his patience and endurance of remedial means as in the first-described affection of the genitals.

G.—Diseases of the Testicles.

Chronic swellings, induration, ulceration, and fistula of the scrotum and the testicles, with or without affections of the inguinal glands, find relief here, in most cases, of these diseases. I can only repeat what I have said already in 1837, in my former work, pages 142 and 143.

I have observed that young men whose parents have been suffering from scrofulous, or syphilitic, or mercurial dyscrasy, who made too early use of their generative organs, suffer sometimes from a peculiar disorganization of the testicles and the seminal vessels, often combined with fistulous ulcers, swellings, and diseases of the inguinal glands. These scrofulous disorganizations are recognised by a pallid, relaxed, insensible scrotum; the testicles are altered, sometimes irregular, tuberculated on their surface, sensible small tumours lying round the epydydimis, being still harder, more rugged, and less irritable, often combined with induration and enlargement of the seminal

vessels, to which curved fistulous openings lead. At a later period these organizations are generally removed by extirpation. But a closer examination should always be made. Disorganizations, seemingly of a schirrous nature to the first view, are mostly found to have been of slow growth, causing no pain, and that they have many times acquired a considerable size without the patient noticing them. Frequently I observed, at the same time, an enlargement of the inguinal glands, of all the lymphatic vessels and glands in the cavity of the pelvis and abdomen.

It is a remarkable instance that the re-establishment of the diseased organs in a healthy state proceeded not from the peripheria to the centre, but from the tissue of the testicle itself to the epidydimus and seminal vessels.*

* Mr. N., thirty-two years of age, had, in consequence of several ghonorrheal attacks, considerable enlargement and indurations of both testicles and the left "funiculus spermaticus." The prostate gland was similarly affected, and swollen to an enormous size, which greatly interfered with the functions of the rectum; there also existed stricture in the urethra, in the fossa navicularis; various medicines, the decoction of Zittmann was twice given, and the syrup of Saffecteur. He had used also several Mineral Waters, but without success. He took whilst here fifty baths, and used injections with the brine into the urethra and rectum, drinking at the same time the Waters; the result of which treatment was, a perfect restoration of the prostrate gland to its right size, the removal of the stricture, a reduction of the swelling of the testicle

H.—Disorganization of the Corpus Cavernosum Urethræ.

Thickening and cartilaginous induration of this part, likewise of the veins, and lymphatic vessels of its tissue, have been relieved here in many instances. To these rare diseases, several of which have been combined with grave affections of other organs, the dissolving and discussing quality of the water of the Elizabeth Spring has been powerfully proved. After

and of the funiculous spermaticus, together with a resumption of the suppressed functions of the glandular organs, thus effecting a perfect cure.

Mr. W., nineteen years of age, who had never been attacked by any syphilitic disease or ghonorrheal affection, but suffered from indurations of a knotty character, and degeneration of the testicles, with their epididymides and their funiculi spermatici; at the same time, there existed three fistulous ulcers, communicating with the testicles, besides, the inguinal glands were also indurated and ulcerated. These sufferings had produced great emaciation of the body, and the digestion was very much disturbed. I ordered him to drink the Waters, with bathing, and exposed the fistulous sores freely to the action of the water; and after having added ten quarts of bittern to the baths, the re-action in the wounds commenced, a healthy granulation arose, the testicles grew, together with the surrounding tissues, and the places heated. Fifty baths were required to confirm the cure of all the sores, and to reduce the swelling of the testicles, inguinal glands, &c., the testicles acquired their natural elasticity and form, so that there remained no scar, except the cicatrises of the former ulcers, at the same time digestion and strength were also perfectly re-established, and the cure has proved permanent.

having removed the longer existing diseases of the genitals, by a course of the Water, there commences a greater degree of strength and a heightened vitality, while the outside appearances become more healthy. I need not remark that the above-named complaints require a long and cautious course of the Mineral Water.

I.—Sand and Calculi in the Kidneys and the Bladder.

The remarks I made in my work of 1837, on the curative power of the Mineral Water in these formations in the urinary organs, have been proved since, by many facts of the most evident kind. My experience taught me, that an internal and external use of the Water of the Elizabeth Spring has the power, not only of stopping the formation of sand and calculi going on already, and of removing the morbid products already existing, but that the Springs have a certain healing power to remove the tendencies to these morbid dispositions, and to re-establish a perfect normal state of the urinary organs. Every physician will be persuaded of this great efficacy, on reading the following case of disease—complicated hemorrhoids and gout—and treated, without success, for many years, by physicians of acknowledged ability, and aided by the whole range of medicines and Mineral Waters. I give the patient's own words, only premising, that

he has good animal spirits, and moving in a high position in life, of a strong powerful frame, that he never suffered from any disease in his early age, led a regular, but, mentally speaking, a much agitated life, and that I am not aware of any disease of the same kind in his family :—"In my seventeenth year," he said, "I first suffered violent rheumatic pains, combined, after a short time, with hemorrhoidal affections. These diseases seem to have laid the foundation stone—first in the year 1822 ; after which I passed, for several years, sand and blood (with the urine,) without my paying any attention to this. I used Karlsbad, in the years 1823, 1825, 1827, 1834, 1835, and 1836, and Wiesbaden 1837, without feeling any real relief, or the removal of the cause. Since the year 1828, I used, continually, natrum: carbon: depurat: sicc:, mixed with capsicum annum, by means of which the conglomeration of the sand was prevented, so that it passed merely as sand. If I did not do so, I was punished by the passing of stones. After having obtained relief, until the year 1835, by using the aforesaid medicines, but always in fear of the formation of larger calculi, and with the secretion of blood, generally with sand, I began, in the year 1838, to use the Waters of Kreuznach. Notwithstanding the physician I consulted at that time did not agree with it, and you declared to me, in the first consultation, that the Water of the Elizabeth Spring had not yet

been employed against urinary calculi, after having heard the entire history of my disease, and the reasons which had awakened in me the hope of being cured, you advised me to use the said Spring, which was followed by surprising success. After 1838, the secretion of blood was diminished; after the second course, in the year 1839, all morbid secretions and symptoms of them vanished entirely. Since the year 1839, I never passed any calculi, nor sand or blood, so that, even after fatiguing exercises, hunting, or ascending mountains, it did not occur.

"The first formation of calculi appeared in the year 1822, almost in the fortieth year of my age. All Mineral Waters employed before the year 1838 gave relief only for a time; the secretion of calculous matter ceased for some months, but then recommenced. The remembrance of Kreuznach awakens always within me sincere thanks to the Lord for having led me to make trial of its Waters.

"March, 1845."

Besides using the Mineral Water, and taking it in the beginning mixed with warm milk, and continuing the baths, I have not employed any other means in this difficult and complicated case. The perfect cure succeeded by the mere use of the Mineral Water. When the patient, after having drank the water with

milk for several days, shewed me the urine of the night, I will not deny I was alarmed, not only from the immense quantity of sand, but still more from the quantity of dark, bluish black, thin blood which was passed; and that merely the amelioration in the general health of the patient induced me to allow the continuance of the course, with the earnest recommendation to him to preserve the greatest tranquillity, and not to drink too much water. The long and violent sufferings awoke in the patient such determination to go on with the Waters, that I soon risked the use of the pure Mineral Water, and notwithstanding the passage of sand, small calculi, and blood with the urine, remained for a long time, yet the secretion of blood became daily less, and more pallid; the sand diminished also by degrees, and after some weeks had passed, the urine was clear and light, without any other substance admixed, which continued with rare interruptions to the end of the course in the summer 1839, when there re-appeared, most frightfully, symptoms of the former kind, with secretions of sand and blood, but ceased far sooner, so that at the end of this course a cure was effected, which remained since 1839 until this time, 1845, without the slightest relapse occurring. This success, in such an inveterate and complicated case, merits our attention in an high degree; because the six times repeated courses of the excellent Waters of the Karlsbad, the use of Wiesbaden, and the reme-

dies most in vogue, could afford only a short relief, but no radical cure. The Kreuznach Mineral Water removed, so perfectly, not only the already existing formations of sand and calculi, but also all which existed until that period; and now, after a space of six years has elapsed, no symptom has re-appeared, and the patient rejoices in full health and strength, notwithstanding his increasing age.

To extend this experience, since that time, several other less important cases have occurred; all proving, evidently, that the Water of the Elizabeth Well, internally and externally employed, not only removes the already deposited morbid products in the kidneys and bladder, in the blandest way, but effects also a radical cure of many long standing morbid dispositions.

K.—Diseases of the Bones and Joints.

Scrofulous inflammations, swellings, enlargments, indurations, curvatures, dislocations, ulcerations of the bones, and the periosteum, and the joints, frequently combined with other dyscrasies, find always relief from the use of our Mineral Water. We obtained the same results in diseases of this kind, combined with metastatic depositions; for example, of milky, lymphatic matter. Further, also, in cases where these depositions existed of themselves. If ulcers of the periosteum and bones (caries,) or of

the ligaments and synochial membranes, and their glands, which surround the joints, are existing at the same time, then the mere internal and external use of our Mineral Water is not sufficient; but local applications of the mineral deposit, strengthened by bittern, are also required for securing the most desirable results, frequently in a short space of time.

These morbid depositions, in the bones and joints, are to be found most frequently on the spine, the claviculæ, and the long bones of the hands and feet. Of the greatest importance, and requiring the most careful attention, is the morbid material, and local alterations of the bones, cartilages, and the annexed tissues near, and of the spine.

1.—In reference to the peculiar local alterations of the bones themselves, and

2.—In reference to the great influence of these alterations on the nerves, spinal marrow and its membranes and nerves.

Patients suffering from swelling, induration, local alteration of single, or several, distorted and curved vertebræ, are frequent subjects of medical treatment; these affections often are combined with debility, or even lameness, of both hands and feet; if these alterations have existed a longer time, the affected parts

become shrunk; to this succeeds, generally, a tardiness, even a perfect retention of the urine, and of the contents of the bowels; and sometimes the contrary, great relaxation of the bowels and incontinence of urine; sometimes debility of the sight—at first of one, then of both eyes; and likewise of the other organs of sense may combined with the above-named alterations. The cause of all these sufferings is always to be found in the affected spine, in a pressing, pulling, or dislocation of the spinal marrow, and its membranes; or of each, or several of the nerves coming from it. The surgeon will discover, by a close examination, that no exterior cause, as a fall, or a knock, &c., has produced the disease, as the parents are very much inclined to think; but that a dyscratic quality of the fluids in the body, has produced a deposition of a morbid substance into the affected bone, or soft part of the spine; therefore, he will not advise the support of orthopædic machines and bandages, which often augment the sufferings, but he will recommend, as long as the inflammatory irritation lasts, remedies, which ameliorate the quality of the fluids, and remove the local irritation, in combination with necessary quietness and tranquillity,—and he will sooner afford relief by such treatment, and a properly-regulated diet, than by any mechanical means.

Experience proved our Mineral Waters the most powerful in all such diseases that are produced by

dyscratic depositions; not only have the alterations in the bony substance, and the annexed tissue, been most fully remedied, but also the obnoxious effects produced by them on other tissues eradicated; the sources, from whence the disease derived its origin, have been diminished with the commencing restoration of the affected spine, and health has been, by degrees, fully re-established without the help of any other means.

Sinuosities, that had existed a long time, with diseased bones and fistulous ulcers, mostly consequences of lymphatic and metastatic abcesses; white and cold tumours, which have their seat, generally, near the joints, experience relief by the use of our Mineral Waters, if the disorganisation has not made too great progress; likewise, ulceration in the cavity of the belly, or the pelvis, which have their centre near the vertebræ of the loins, on, or under, the ilarius and proas muscle, combined with enlargement and irritability of the corresponding external parts of the spine; slight lameness of the same side, contraction and shortening in the knee joints; fistulous openings in the direction of the inguinal annulus, from which exuded a great quantity of thin watery fetid matter; these have been cured under my attendance, by the sole use of our Mineral Water.

Scrofulous caries of the bones of the hand and the

foot, (pedarthrocacæ) affecting more generally the metacarpal bones, than those of the fingers and toes, and being frequently connected by sinuosities of the wrist and the ancle, have been not only removed, but, although inflammation and enlargement frequently existed, the perfect use of the limb has been restored, in most cases.

Necrosis, as a consequence of the above-named dyscrasies, which affects particularly the large bones of the upper thigh, the shin bone, the upper part of the arm to a great extent, where the most skilful surgeons could not remove the necrotic parts, have often been healed in one season, by means of the baths. The late Dr. Stieglitz, one of our greatest physicians, expressed to me the utmost joy and admiration, in consequence of the cure of a metastatis of milk, of a most dangerous form. The deposition of the milk existed near the superior vertebræ of the milk lumbals, above the left kidney, and below the diaphragm, under the peritoneum. This deposition had several fistulous openings in the external skin, in consequence of which, a considerable quantity of thin liquid, of a white yellowish matter, but not of any peculiar odour, was issuing. At the same time, there was a lameness of both the feet, extreme weakness, and symptoms of fever. Medicine produced no beneficial effect during twelve months, and Mr. Stieglitz sent the patient here, for a course of

baths. These were used for some months, and removed entirely the metastatic abcess, and the lameness of the feet. Then, the lady took a course of baths of the Chalybeate Waters of Schwalbach, for restoring strength, and remained, during the following winter, in a warmer climate. In the next season she returned to Kreuznach, for another course of baths; the fistulous openings, which were closed and cicatrized a year ago, became suddenly inflamed. After a week's employment of the baths, they opened again, and discharged matter during a fortnight. After this period, they healed again, and the lady has enjoyed, ever since, now six years ago, continual good health, although she has been once more a mother.

L.—Gout and Hemorrhoids.

Gout and hemorrhoids have their common seat in the port vein; both are hereditary diseases, and always combined with morbid alterations in the digestive organs, and in the secretion of the bile, both are occasioned by suppressed functions of the skin, and the urinary organs. In some cases, they are also the consequence of excess in the sexual functions, and immoderate enjoyment of the table. Both have the disposition to affect the organs of the blood system, chiefly by their morbid action. The gout pronounces itself generally by great irritation of the heart and arteries, while the hemorrhoids

manifest themselves in the larger veins of the belly, and, at a later period, in those of the pelvis. From the port vein, the hemorrhoids pass to the veins of the intestinum rectum, at a latter period to the vessels of the bladder and the womb. The gout has a dangerous tendency to deposit a morbid product into the tissue of the membranes, and valves of the heart, and arteries ; then into the serous and fibrous membranes ; likewise into the joints, retarding the action of these organs, by bony and cartilaginous formations, and sometimes rendering them entirely useless.

We use our Mineral Water with success for re-establishing an healthy state of the portal system, for ameliorating and regulating the functions of the digestive organs ; and by their powerful action, the skin and urinary organs become excited to greater activity, and the secretion of the deposited morbid substances commences.

Depositions of gouty matter in the joints have been reduced by the internal and external, and especially by the local employment of the Mineral Water, in such a degree, that the crutches formerly indispensable could be thrown totally aside. By the use of our Mineral Water, circulation becomes more free and regular, the functions of the skin powerfully excited, by means of which the beneficial effects on the hemorrhoids generally appear in a short time.

No less great a success was proved in many cases where hereditary or acquired disposition to hemorrhoids existed, but had not yet been developed; this disposition is frequently combined with congestions to the head, the spine, liver and lungs, which tendency has also been suppressed, together with the exciting cause.

M.—Rheumatism.

In Rheumatism, as in the gout, the Mineral Water acts, by exciting powerfully the secretion of all morbid substances; consequently, it is highly recommended, particularly when used as a bath, in chronic rheumatism; especially if that debility of the skin, and the nervous system is existing, and which sometimes resembles paralysis. It is occasionally a consequence of long and violent rheumatic fits, with which other symptoms, and often morbid depositions, have been combined. In cases, in which the rheumatism still partakes of an inflammatory, irritable character, in which no scrofulous or other diseases are combined, and no material depositions are yet made, the treatment with common water baths, or the use of tepid baths at Wiesbaden, Aachen, Toplitz, and Baden-Baden, is to be recommended.

N.—Rhachites.

No dyscrasy disposes more to rhachites than scrofula, in which all the glandular organs become enlarged and disorganised, the bones mollified, their firmness and ossification is retarded, instead of progressing; the urine contains more phosphate of lime; the bones become poorer in all chemical combinations, which they want so particularly, for getting hardness and strength; they are soft and flexible, like the glands; in this dyscrasy, the liver and gall bladder are also enlarged. The secretion, not only of the kidneys, is augmented to a morbid degree, but also of the liver, the skin, and the lungs; the latter I judge from the bad smell of the breath of rhachitic children.

Rhachites is, in most cases, hereditary in families, but it becomes frequently also acquired. This takes place more particularly in low damp valleys and badly-aired lodgings; and by heavy, mealy, indigestible, and insufficient nourishment, particularly if these causes exist during the first period of infancy.

Besides a good, sufficient, easily-digested dietetical regimen, the most careful attention, and residence in a dry sunny air, the internal and external use of our Mineral Water—like the steel Waters of Schwalbach, Pyrmont, Spaa, &c., will, generally, re-establish

perfectly a healthy condition of the bony, glandular and digestive organs. Our Mineral Water exerts its efficacy as a remedy in rhachites by ameliorating and regulating the altered cutaneous and urinary organs; by augmenting the quantity of fibrine, of carbonate of iron, and of muriate of lime, in the blood, by means of which the bones acquire their due strength and firmness, in a short time.

Rhachitis is seldom found in the South, never in tropical countries; but mostly in low vallies that lie deep between high ranges of mountains.

O.—Diseases of the Skin.

Of all diseases, the cure of which may be looked for from the employment of our Mineral Waters, chronic affections of the skin are the most frequent; and Kreuznach owes the greatest part of its celebrity to the happy results, obtained from the employment of its Waters, in the worst aud most pertinacious cases, and which had often resisted every other remedy. But there is great circumspection, and diligent and careful examination required to distinguish correctly the different forms of cutaneous affections: because all of them are not treated here successfully; some would soon become worse; on which account, I will give a detailed description of all the forms for which the Waters may be resorted

to. Of course I speak here of no acute disease of the skin, which may be a peculiar disorder.

In reference to the method of employing the Mineral Water, only a few general remarks can be allowed, because the treatment is to be directed in every instance according to the constitutional character of the patient, and after the disease has been ascertained; and there is great difference, if the latter is only local, produced by mere external causes, or if it is the expression of a certain dycrasy, whatever the complications may be, &c.

It must be left to the judgment of the attending Physician to advise, in every special case, the manner of treatment suitable for that peculiar one. We have had the melancholy experience, that the unsuitable employment of the Mineral Waters did great mischief, in cases which certainly would have gone on successfully if managed with greater discrimination.

There are, in our opinion, few chronic diseases of the skin not produced by a dyscrasy, or a morbid state of one or several of the more important organs. If this be hereditary, or acquired by a certain condition of living, or caught by infection, or if all these momenta work at once together, it should be inquired diligently into, and be considered in the regulation of the treatment. If the malady is merely

a local one, roused by external causes, as, for example, in some forms of Eczema (heat eruption,) and not of long duration, and if there exists no metastasis to an internal organ, or no predisposition to it, in consequence of weakness, it is to be apprehended the health of the skin will be frequently re-established by an energetic use of baths, douches, &c.; yet it is preferable, even in these instances, to ameliorate the whole constitution, by taking the Mineral Water internally, thus affecting, at the same time, a useful derivation by exciting the secretory organs.

Of all dyscrasies, producing chronic diseases of the skin, the scrofulous should, above all be noticed, as experiencing the effects of our Water; likewise in others produced by scrofulous dyscrasy; these forms demand always the external and internal use of the Mineral Water. Almost all those caused by syphilitic dyscrasy, which resisted in many instances the most powerful remedies, have been perfectly cured. More frequently cases are occurring, in which a long treatment with mercury and its preparations, have produced mercurial disorders, which kept up the already existing disease of the skin, or rendered the diagnosis a very uncertain one; in these cases, the external and internal use of the Elizabeth Spring, proved eminently successful. Interruptions in the circulation, particularly of the vessels of the abdomen,

pelvis and chest; likewise disorganisation of the organs contained in them, and especially of the liver, spleen and the genitals, are a frequent cause of diseases of the skin, in which cases the Mineral Water is very efficacious. Not only is the diseased cuticle perfectly restored to its healthy state, but also any return of the eruption is prevented by a removal of the primary cause.

I will now mention the forms of disease of the skin, in which I successfully employed our Mineral Water; permitting me to add some remarks, which I believe will be found of interest. I use the names by which these affections are most generally known in England, Germany, and France, to prevent any possible mistake.

Of the chronic diseases of the skin, whose character is especially manifested in an abnormal state of the epidermis, the following have found relief at Kreuznach.

1. Pityriasis, herpes furfureau volatil, (Alibert) Dandruff, with all its different variations as Simplex Tinea furfuracea, Porrigo furfuracea, amiantacéa; Porrigine amiantacéa (Alibert), Psydiacia, Tinea amiantacéa (Fuchs); as versicolor (Willan): Panne hepatique (Alibert) Liverspot. Of course, there is in the treatment of this form, the greatest regard to

be paid to the exciting causes; it was found by experience, that the simple forms vanished frequently from the mere use of the baths, while for example, with Pityriasis versicolor, I was often compelled to order a strict dietetical regimen as an adjunct to the internal use of the Waters, and also to employ the douche before I was fully able to remove the malady.

2. Ichthyosis, fish skin disease, maladie écailleuse; Serpentine, Pargamnie. In this most obstinate and inveterate eruption, the use of our Mineral Water always afforded relief, in some peculiarly interesting cases.

3. Psoriasis, dry scall, scaly tetter, dartre sêche ecailleuse, Herpes furfureux et synameux (Alibert.) This very troublesome variety requires a long internal aud external use of our Mineral Water. I made an observation worthy of notice therein, that in all cases of this disease, in which the disorganisation of the epidermis took place only to a small extent, and that particularly on the outside of the knee and elbow joint, it required longer treatment than those in which the disorganisation was more diffused and covered a larger surface.

Of the papulous forms of the disorders of the skin, we may remark the following:

4. Lichen, lichenous rash, dartre farineuse, and

5. Strophulus; both forms occur but seldom, they are characterestic, chiefly of the obstructed development of the follicles of the skin, or of the retention of the secreted sebum in them, and are quickly removed by baths, exciting the skin and its glandular organs to a normal activity.

A longer course, and the internal and external employment of the Water, is sometimes demanded for the cure of this variety of cutaneous disease.

6. Prurigo, scabies sicca, the cause of which is mostly to be found in some interruption in the vessels of the abdomen, or a dyscratic state of the blood, &c. In the treatment of this form, we frequently require the use of the bittern in large quantities. Also of the forms characterised by vesicles, the following are relieved:

7. Herpes, olophlyctide (Alibert) less frequently observed in the chronic form. The most pertinacious kinds are the herpes pseudo-syphilis, præputialis, and valvaris, frequently connected with an impaired digestion, sometimes with worms, or promoted by continued uncleanness, &c. The removing of the causes by simple Water Baths, and washing of the affected places, brought quick relief.

8. Eczema, heat eruption, herpes squameux humide (Alibert) Dartre vive, is by far the most frequently occurring in our practice; less seen where the body is covered by the clothing, than on the bare hands and face. The treatment is to be regulated solely in reference to the causes. We observe the malady as a mere local one, in youthful individuals, especially with labourers in certain occupations, such as bakers, millers, washer-women, &c.; and here mere Water Baths suffice for gaining a satisfactory result. This malady also frequently occurs in hot summer weather, in those patients who use baths strongly impregnated with bittern; it appears then particularly in the folds of the skin, and on the bending sides of the joints. I am not at all inclined to believe this eruption of a critical nature; we removed it quickly by diminishing the quantity of motherley in the baths. In cases like those above named local ones, the eruption is solely in consequence of the irritation of the skin, produced by heat, perspiration, and the irritating Water; likewise it is the case with eczema, that is so frequently observed after scabies, especially on the outside of the arms and legs, and which is produced solely by the irritating and rubbing with sulphur ointment, black soap, solution of potash, &c. Simple Water Baths of our brine removed it always, in a very short space of time.

More frequent than the above is another form of

an inveterate character I have frequently had under treatment here, whose existence is only to be considered as a deposition caused by a disordered state of the blood, and where it would be a hazardous enterprise to remove it from the surface of the skin, without removing, at the same time, the primary cause of it; which may be done by purifying and ameliorating the blood, by rousing the cutaneous vessels to a due fulfilment of their functions, and also those of the intestines and the urinary organs.*

* Mr. M., thirty-six years of age, was, when a child, affected with slight swellings of the glands of the neck, but otherwise had good health. Having left the north of Europe, for the Brazils, he became subject there to an affection of the whole skin, which, wherever the body was covered, remained perfectly inactive; and he had not perceived, since the commencement of this disease of the epidermis, the slightest perspiration, or felt at any time a vivid sensation of warmth; those parts of the face that were covered with hair became the seat of violent burning itching and pustular eruptions which surrounded each hair, and filled with a yellow fluid, which, bursting, ran into each other and dried away, but soon reappeared in a greater degree, and covered the whole surface of the left side of the face, and extended thence over the hairy parts of the neck, temple, and, in single pustules, on both the eyebrows, notwithstanding the employment of many remedies, and twice using the decoction of Zittmann. He came, early in the year 1836, to Kreuznach, having been induced to do so by a friend, who was cured of a similar affection. Drinking the Water and using the bath, with frequent fomentations of the affected parts, and gargling the throat, which was swollen, for six weeks, a great alteration

Of these forms, too, of affections of the cuticle, manifested by eruptions like blisters, often of a large size, phypia, rupia, and pemphygus, have, in every instance, been treated successfully.

There are few of the pustulous forms which do not find relief from our Mineral Water: it would exceed the bounds of this work to give an explicit account of this varied class, therefore I offer only a few remarks on some of those most commonly met with.

was produced. The skin, hitherto without moisture, even in tropical climates, began to secrete perspiration—at first, partially, on the back between the shoulders, and one or two other places, and then generally. The patient began to feel, at the same time, an agreeable sensation of warmth pervading the skin, which brought a feeling of comfort he had a long time been a stranger to; and, although the weather shortly afterwards became cool, the restored activity of the exhalent vessels continued; whilst the urinary and digestive organs were roused to increased vigour. The before-mentioned critical eruption of pustules appeared in the hairy parts of the body, especially round the genitals, and, with its appearance, the affection of the neck vanished. There arose no new eruptions, but the first affected parts did not alter in any way. I now prescribed decoction of sarsaparilla, without any mercurial preparation, and an abstemious diet, and the use of the bath; but this method brought no change, though pursued for four weeks. We then employed again the Mineral Water, externally and internally; took out the hairs where the pustules were, and had the satisfaction of seeing a perfect cure of this obstinate case of fifteen years' duration, and no return has since taken place.

9. Impetigo arbor, porrigo favosa, mostly observed in young children of scrofulous habit, whether the disease appears on those parts of the head which are covered with hair, (tinea mucosa granulata) or whether it appears on the face (tinea faciei, crusta lactea, achor muqueux de la face.) There is always the necessity of removing the exciting cause, by which means the secondary disease vanishes of itself.

10. Acne mentagra, sycosis of the beard, mentagre, a form also very difficult to cure, and mostly connected with a disordered state of the portal vessels; a longer use of our Mineral Water removes even these most effectually.*

The following tuberculous forms have also been treated with much success:

11. Lupus, dartre rougeante, chiefly resulting

* I attended last season a young gentleman who suffered from eczema covering the back of the joint of the left knee, so that he could not extend the leg without pain; he was about to enter the army, but this disease obliged him to relinquish it; he had tried the Waters of Wiesbaden, and the Decoction of Zittmann, with various other means, but without success. He came to Kreuznach, made use of the Springs, both externally and internally, and found himself entirely relieved from his complaint in the space of six weeks, and left to commence his military career.

from scrofulous dyscrasy. The use of the baths, in combination with frequent washing and drinking, effected a perfect cure, in many instances; but it is not to be denied, (especially in the cases known by the name of lupus exedens,) that transient relief can only be expected.

Chronic disease of the skin, produced by syphilis. In these dangerous eruptions, the Mineral Water shows its power more than in any others. I intend to speak more explicitly, (than the extent of this little work allows,) in one of our medical journals, on these causes of disease of the epidermis, and to communicate therein my long experience on that subject, and the power our Mineral Water has in producing results often exceedingly satisfactory in these affections.

CHAPTER XIV.

Some Remarks on the Bittern.

The bittern of the Mineral Water of Kreuznach has become so important in the medical world, that it has acquired a more than European name.

It is used as an addition for strengthening the baths in most of the famous watering places of the neighbourhood, at Ems, Wiesbaden, Hombourg, &c.; therefore, I need make no apology for adding some remarks upon it, and for drawing the attention of the public, as well as of the profession, to the fact, that it is only to be procured at Kreuznach of good quality; the fluid bittern is always to be preferred to the inspissated or dried salt. The bittern, or motherley, (l'eau mère,) is the fluid residue in the boiling pans, after the evaporation of the Mineral Water has taken place, and the salt has been taken out. It contains, besides a small quantity of common salt, all the efficacious substances of the Waters, in a very concentrated state.

By mixing it in our baths, we have it in our power to strengthen them to any required degree, as may

be suitable to the individuality of the case, and the physician acquainted with its effects may advise.

The inspissated bittern, or, as it is called, the salt of the bittern (or of the motherley) is to be procured here from the druggists and bathing establishments; it is by solution in common water, brought again into a fluid state, and so used in baths.

Abstractedly, from the partial change the fluid bittern undergoes, by the process of inspissating, it remains still to be remarked, that the quantity of the solving water is not easily to be regulated; the eye is not sufficient for that purpose; the specific weight must be exactly ascertained. The baths are to be prepared with this salt of the bittern, and it is requisite that the whole quantity of it be dissolved at once, and then preserved for future use. The salts contained in the bittern have not the same points of crystallisation—that is, one salt crystallizes sooner than the other, during the cooling of the bittern, by means of which layers of different salts become produced, which are very different in the proportions they contain of the salts of bromine. Chemists preparing bromine* have obtained different

* Bromine belongs, like Iodine, to the recently-discovered elemental substances. It was discovered first by Balard, at Montpellier (1826), in sea water, some plants, and animals (Janthesia Violacea). Liebig first found Bromine in the Springs of Kreuznach, (the name is derived from a Greek

results, in reference to the quantity, when they use the inspissated bittern for that purpose, which is found to be caused by the above-mentioned difference of crystallisation, while the fluid bittern itself constantly gave the same quantity.

The physical and chemical qualities of the bittern, (fluid) as is proved from the inquiries made by G. Osann, and described already in my former work, 1837, (C. C., p. 60 and 61,) are as follows:—A Prussian quart of bittern, removed from the boiling pans, at the same temperature as that of the surrounding atmosphere, weighed about four pounds, medicinal weight, (forty-eight ounces;) the specific weight, after having extracted the bittern salt more or less, varies very little, and amounts, generally, at 15° Reaum. (65¾° Faht.) to 1.43.

The bittern of the saline Munster am Stein contains,* from G. Osann's chemical inquiries, in 100 parts,

word Βρωμαω, bad smell.) Bromine has a specific gravity of 2·99 and is three times as heavy as water, and of a strong odour, which explains the peculiar smell perceived round the graduating houses and baths: at 20° Reaum. (73° Faht.) it becomes solid; at 47° Reaum. (147¾° Faht.) it boils, evolving a fine red gas. With a solution of starch it produces a fine orange yellow colour, which detects it in its various combinations.

*This analysis, as well as that obtained by Mr. Loewig (The Bromine and its chemical combinations p. 14), where he asserts, he found twenty ounces of Bromine in thirty pounds of the

24.12 Bromide Calcium.
9.29 Chloride Calcium.
0.48 Bromide Magnesium.
0.18 Iodide ,,
0.80 Chloride Potassa.
1.28 Chloride Soda, with a peculiar resinous substance, a small portion of Thermate of Iron, and of an azotic compound, which, when distilled, decomposes and forms with the Proto-Thermate of Iron, Proto-Cyanuret, and Deuto-Cyanuret of Iron, (Prussian Blue.)
63.85 Water and Loss.

100.00

inspissated bittern of Kreuznach; can only be admitted in a very concentrated bittern. Iodine is, according to chemical opinion, an elemental substance, and has been discovered in the year 1812, by Courtois (now residing at Paris). Liebig first discovered it in the Mineral Waters of Kreuznach; Courtois, the first in a species of Fucus; since which it has been found in several sea plants and animals, and also in several Mineral Springs. The efficacy of Iodine in many diseases, is proved by the experience of almost all the profession. Lugol and Wutze have the great merit of having first enquired more closely into its effects on scrofulous diseases, and of having made known the indications for its use. Iodine has a specific gravity of 4.948, is five times heavier than water, and boils at 140 Reaum. The gas of Iodine is the heaviest of all known gases. Water dissolves $\frac{1}{7000}$ of its weight. It produces a fine blue color, with a solution of starch, which is the test for its combinations.

The bittern is of a darkish yellow colour, rather brownish, but clear and transparent; it feels oily, soft, and smooth, and foaming up in many clear bubbles, if it is poured out.

The smell is like that of the Fucus species of plants, and of the air on the sea shore, but, only that the combinations of the bromine is more prevalent, which approaches the nearest to the smell of our Mineral Water, particularly of the evaporations, round the graduating buildings.

The taste is disagreeably bitter, astringent, burning, very salt, leaving a sensation on the tongue, that remains for some time.

If the bittern is brought in contact, for a long while, (by friction), with the epidermis, the skin peels off: if the head is plunged into baths, strengthened by bittern, or the hair is washed with the Water, the latter assumes an oily gloss, the roots become strong, and if there are already grayish or whitish hairs, ladies have observed that these darken, and that the inclination in the hair to become gray, decreases, which I could not perceive, and was rather incredulous on that point. The fluid bittern can be preserved for a long time, and conveyed (notwithstanding its thick consistence), only in vessels made of glass or china; it penetrates wooden vessels and

casks, and oozes out, so that if it is conveyed in wood, there will be a continual decrease in quantity, in proportion to the time it remains in the cask; after it has been kept for a long time in wooden vessels, and they have been continued to be filled up, as often as it flows out, the wood becomes entirely saturated with it, and, of course, a great deal is lost, when such vessels are appropriated to keeping it in, or used for conveying it to a distance.

The inspissated bittern, (salt of the bittern), which is sent in cases, is to be kept in very dry rooms, removed from all moisture; it is best put on old boards; in moist air it attracts the water contained in the atmosphere, and becomes fluid, which not only is a loss, but also spoils the surrounding things with which it may be in contact. The bittern of the saline (Munster am Stein), is to be procured from the committee of the company for the baths, who, also, alone, can be depended on for sending the water of the Elizabeth Spring, good and genuine.

JOSEPH GILLETT, PRINTER, 2, BROWN STREET, MANCHESTER.